Calvo, Kathy

Subject: FW: 5th Release: FOIA FW: Section 21 Petition: Fw: Response to Questions on Root EHP Lead Loading Article

From: Fehrenbacher, Cathy
Sent: Friday, June 24, 2016 4:32 PM
To: Calvo, Kathy <Calvo.Kathy@epa.gov>
Subject: FW: Section 21 Petition: Fw: Response to Questions on Root EHP Lead Loading Article

Cathy Fehrenbacher, CIH
Acting Deputy Director, Risk Assessment Division
Office of Pollution Prevention and Toxics
U.S. Environmental Protection Agency
1200 Pennsylvania Ave., N.W. (7403M)
Washington, DC 20460

(202) 564-8551

From: Cathy Fehrenbacher [mailto:Fehrenbacher.Cathy@epamail.epa.gov] **On Behalf Of** Christina Cinalli
Sent: Friday, June 24, 2016 1:41 PM
To: Fehrenbacher, Cathy <Fehrenbacher.Cathy@epa.gov>
Subject: Fw: Section 21 Petition: Fw: Response to Questions on Root EHP Lead Loading Article

FOIA 2016-008360

Christina Cinalli, Physical Scientist

Exposure Assessment Branch
US EPA/ Office of Pollution Prevention and Toxics
1200 Pennsylvania Ave. N.W. (7406M)
Washington, DC 20460

Deliveries/Visitors:
Room 5115C, EPA East
1201 Constitution Ave. N.W.
Washington, DC 20004

Ph: 202-564-8542; Fax: 202-564-8671
cinalli.christina@epa.gov
----- Forwarded by Cathy Fehrenbacher/DC/USEPA/US on 06/24/2016 01:40 PM -----

From: David Lynch/DC/USEPA/US
To: Christina Cinalli/DC/USEPA/US@EPA,
Date: 06/06/2011 03:19 PM
Subject: Fw: Section 21 Petition: Fw: Response to Questions on Root EHP Lead Loading Article

As discussed.

David G. Lynch
Economics, Exposure and Technology Division
Office of Pollution Prevention and Toxics
US Environmental Protection Agency
1200 Pennsylvania Ave NW (7406M)
Washington, DC 20460

VOICE 202-564-8532
FAX 202-564-8892

----- Forwarded by David Lynch/DC/USEPA/US on 06/06/2011 03:17 PM -----

From: Harry Lewis/DC/USEPA/US
To: Cathy Fehrenbacher/DC/USEPA/US@EPA, Donald Rodier/DC/USEPA/US@EPA, Dave Topping/DC/USEPA/US@EPA, Debbie Norris/DC/USEPA/US@EPA, Edward Hanlon/DC/USEPA/US@EPA, Eric Jackson/DC/USEPA/US@EPA, Julie Simpson/DC/USEPA/US@EPA, Maria Doa/DC/USEPA/US@EPA, Marna McDermott/DC/USEPA/US@EPA, Nhan Nguyen/DC/USEPA/US@EPA, Richard Wormell/DC/USEPA/US@EPA, Scott Prothero/DC/USEPA/US@EPA, Cody Rice/DC/USEPA/US@EPA, Harry Lewis/DC/USEPA/US@EPA, Robert Elias/RTP/USEPA/US@EPA, Larry Zaragoza/DC/USEPA/US@EPA, Conrad Flessner/DC/USEPA/US@EPA, Andy Mamantov/DC/USEPA/US@EPA, David Lynch/DC/USEPA/US@EPA, William Brandes/DC/USEPA/US@EPA, Anita Cummings/DC/USEPA/US@EPA
Date: 05/31/2005 10:10 AM
Subject: Section 21 Petition: Fw: Response to Questions on Root EHP Lead Loading Article

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Good morning..

Responses from Dr. Root below.

Please advise me regarding continued need to speak directly with him. He indicates he will call tomorrow (Wednesday) to set up a time for telecon.

Thank you.

--Harry

----- Forwarded by Harry Lewis/DC/USEPA/US on 05/31/2005 09:57 AM -----

"Robert A. Root" <raroot1@direcway.com>

05/30/2005 06:17 PM

To: Harry Lewis/DC/USEPA/US@EPA
cc:
Subject: Response to Questions on Root EHP Lead Loading Article

Harry,

I am pleased to provide responses to questions the EPA has on my article entitled “Lead Loading of Urban Streets by Motor Vehicle Wheel Weights,” which was published in /Environmental Health Perspectives/ 108: 937-940 in October 2000.

I have attached the requested raw data and calculation files. I trust you and your staff understand that these files were created for my use and that extraneous data and/or comments may be included that do not relate to your request.

Question 1. Do you know of any other studies or work that may agree with/contradict your findings?

Response 1. No. I know of no other studies on deposition of lead wheel weights.

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Question 2. Do you have raw data that you can supply relating to your conclusions generally?

Response 2. Yes. Raw data for the biweekly surveys, the initial surveys of eight streets, and a two-week deposition study are enclosed.

Question 3. Specifically, is there raw data to support the conclusion that abrasion in fact occurs, and if so, can you provide this?

Response 3. Yes. See enclosed raw data for Two-Week Deposition Study. This study was conducted along a segment of Juan Tabo Blvd. just north of the segment between Menaul to Lomas, where the biweekly surveys were conducted. To simulate the loss of wheel weights, 5.75 to 6.00 grams of lead wheel weights were deposited in the center of each of the three southbound lanes of Juan Tabo over a 2-week period. See Table 1, Weight (in ounces) per Lane of Lead wheel weights by Weight Size. The weights deposited had been retrieved from streets over several years. During the 2-week course of this study, some 246 oz of lead wheel weights were deposited. On the 15^th day, all visible pieces of lead were retrieved from the street, outer and inner curbs, and from areas beyond the outer curb and beyond the inner curb (median island). The fact that some 40 percent of the wheel weights deposited in the street could not be found at the end of the deposition study is strong evidence that the wheel weights were abraded by the vehicular traffic.

Question 4. And going a bit further, regarding abrasion on road surfaces, your article states that lost lead wheel weights are rapidly abraded and ground into tine[tiny] pieces by vehicular traffic. Do you possess or know of any directly measured values for weight loss from abrasion of tire weights or measurement of particle size of the lead abraded from tire weights?

Response 4. No. I have made no measurement of the size of lead particles abraded from wheel weight lost by vehicles. Many abraded wheel weights look like they were put into a sander, so I would expect many of the lead particles to be tiny (see Figure 1 in EHP article).

Question5. Have you come across any new data since completing your paper?

Response 5. No. I completed this study because I was curious about what happens to the wheel weights. One of the EHP reviewers was initially skeptical and inspected a busy roadside and was surprised by what he found. See EHP reviewer comments.

Question 6. Could you provide us with copies of any and all quantitative information/data that you used to support your paper (including analytical data results, if available)? In addition, we would like to be able to see any information you may have regarding current sources of lead (in addition to lead tire weights) to the air surface water, ground water, and soil within one mile of roadways.

Response 6. Raw data sheets are included for four studies. I have no additional information about lead sources within 1 mile of the streets studied. Certainly there are a number of urban environments where lead from lead paint, prior use of leaded gasoline, and a commercial facility where wheel weights are routinely used to rebalance tires such as an inner city location could become a lead hazard zone. Certainly the small

particles of lead abraded from wheel weights could be easily tracked from the curb at a busy intersection into the home, school, and daycare facilities and onto surfaces where young children play. Small lead particles may also be easily oxidized and swept up as fugitive dust.

It may be possible to distinguish wheel weight lead from lead paint and leaded gasoline lead because wheel weight lead contains 3 to 5 percent antimony. Several years ago I worked with an environmental chemist at the University of New Mexico to see if the antimony might be used as a specific and sensitive fingerprint to distinguish wheel weight lead from other environmental lead sources. We found that although the standard EPA method could not be used to extract both lead and antimony using the same extraction procedure, a suitable extraction procedure was developed but has not been published for lack of funding.

Question 7. What is meant by “steady state survey”? Are there references for this, previous studies, etc?

Response 7. I know of no other quantitative wheel weight studies. A “steady state survey” refers to a survey where the deposition of wheel weights has been ongoing for a sufficient amount of time so that the accumulation of wheel weights and their degradation by abrasion has reached a state of equilibrium – a steady state. This so-called steady state is dynamic because it may be influenced by a number of factors such as the number of vehicles per day, vehicle speed/rate of deceleration, number and distances between stops, street lateral slope, and precipitation.

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Question 8. If only 2 of 8 streets were resurveyed, how is it known that steady state exists? Is there evidence – raw data?

Response 8. The concept of steady state means that that street has reached equilibrium between deposition and loss through abrasion. Streets vary a great deal from one another and the steady state amount of wheel weight lead would no doubt be influenced by the factors identified in the response above. A steady state condition would be expected after several months of undisturbed deposition and abrasion, i.e., street not mechanically cleaned by a sweeper or plow.

My study demonstrates that large amounts of wheel weight lead are deposited and abraded at busy intersections. Although my study does not document the ultimate fate of this wheel weight lead, it does demonstrate that lead wheel weights are deposited and abraded in the urban environment. It is thus reasonable to assume that this lead will either be swept up as fugitive dust, tracked by pedestrians into facilities where the hand-to-mouth pathway will expose young children, or it will be flushed by storm water into nearby lakes and streams.

I understand that several automakers are using non-lead wheel weights and that the European Union will ban the use of lead wheel weights in July 2005. I do not believe there is any technical or economic rationale that justifies the continued use of lead to make wheel weights.

I will be in rural Maine all of this week and most of next week. I will call you on Wednesday to set up a time for a conference call with you and your staff. If for some season I cannot get through to you or if you wish to contact me, please call my cell phone -- (505) 259-3683. If you fail to reach me, leave a message and I will get back to you as soon as I can.

I appreciate this opportunity to respond to your questions.

Bob Root

(See attached file: Juan Tabo BiWeekly Data 2.xls)(See attached file: Juan Tabo BiWeekly Data 1.xls)(See attached file: Daily Survey Results.xls)(See attached file: Juan Tabo Daily Surveys 1.xls)(See attached file: Deposition Study.xls)(See attached file: Deposition Study.doc)(See attached file: Street SUM Wt & No.xls)(See attached file: Street Results.xls)(See attached file: Initial Surveys of Eight Streets.xls)(See attached file: EHP Reviewer Commment 2.PDF)(See attached file: EHP Reviewer Comment1.pdf)